UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,928	09/20/2001	Shuuji Yano	Q66287	9968

7590 12/29/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 12/29/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/955,928	YANO ET AL.
	Examiner	Art Unit
	Sow-Fun Hon	1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Allowable Subject Matter

1. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Withdrawn Rejections

2. The 35 U.S.C. 112, 2nd paragraph rejection in Paper # 6 (mailed 07/02/03) has been withdrawn due to Applicant's clarification in Paper # 7 (filed 10/02/03).

3. The provisional non-statutory double-patenting rejection over US application 09/950,790 has been withdrawn due to the terminal disclaimer (filed 10/02/03).

4. The 35 U.S.C. 103(a) rejections in Paper # 6 (mailed 07/02/03) have been withdrawn due to the new grounds of rejection below.

New Rejections

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable Kameyama et al. in view of Mori et al.

Kameyama et al. has an optical sheet (element) which comprises a retardation film 12 (column 10, lines 1-5) and a transparent layer (oriented film 21 in Fig. 2 below or oriented layer

of liquid crystal polymer 3 in Fig. 3 below) provided on one of the opposite surfaces of said retardation film. See description of Figs. 2-3 below (column 3, lines 15-30).

1, 11, 12: Oriented layer of liquid crystal polymer (retardation film for compensation, circularly polarized light separation layer, etc.)
2: Substrate
21: Oriented film
3: Retardation film (¼ wavelength plate)
4: Polarizing plate
5: Surface light source (light guide plate)
51: Reflecting layer
52: Light source
7: Liquid crystal cell (liquid crystal display)
71: Polarizing plate

FIG. 2

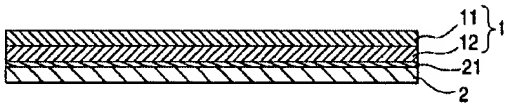
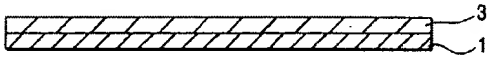


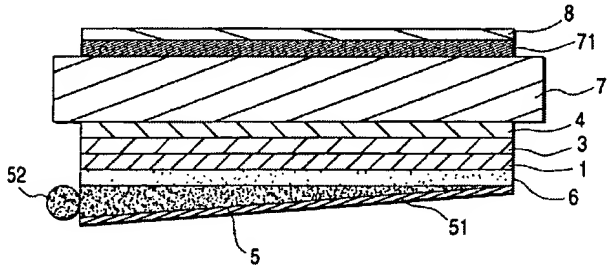
FIG. 3



The retardation film (layer) exhibits $N_z = (n_x-n_z)/(n_x-n_y)$ of 1.1 or smaller (column 10, lines 10-15) which encompasses the claimed range of 0.6 to 0.9, and $(n_x-n_y)d$ (Δnd) is 100 to 720 nm (column 10, lines 5-15) which encompasses the claimed range of 200 to 350 nm. d is a thickness of said retardation film, n_z is a refractive index in a direction of an Z axis expressing a direction of the thickness d of said retardation film, n_x is a refractive index in a direction of an X axis expressing a direction of said retardation film in a plane perpendicular to said Z axis while said X axis also expresses a direction of the highest in-plane refractive index, and n_y is a refractive index in a direction of a Y axis expressing a direction of said retardation film perpendicular both to said Z axis and to said X axis.

Kameyama et al. teaches a polarizer with a laminate of the optical (retardation film laminate) sheet and a polarizing film (plate) (abstract, column 3, lines 15-30). The polarizing film (plate) is disposed so that the transmission axis of the polarizing film (plate) (Z-axis direction of said retardation sheet), becomes parallel to the direction of polarization (oscillation in Z-axis) of the light which has been linearly polarized with the transparent retardation layer (1/4 wavelength plate) (column 12, lines 1-5). Thus the polarizing film 4 is disposed on a side of the optical sheet opposite to the transparent cholesteric liquid crystal layer 1 side of the optical sheet, so that said X-axis direction, which is perpendicular to the Z-axis direction, of said retardation film 3 (sheet) of said optical sheet, is parallel with an axis of absorption (X-axis) of said retardation film 3. See embodiment below.

1, 11, 12: Oriented layer of liquid crystal polymer (retardation film for compensation, circularly polarized light separation layer, etc.)
2: Substrate
21: Oriented film
3: Retardation film (¼ wavelength plate)
4: Polarizing plate
5: Surface light source (light guide plate)
51: Reflecting layer
52: Light source
7: Liquid crystal cell (liquid crystal display)
71: Polarizing plate



Kameyama et al. teaches that the transparent layer may be made of an oriented stretched (coating) film (column 10, lines 25-35) or liquid crystal (column 10, lines 15-25). When made

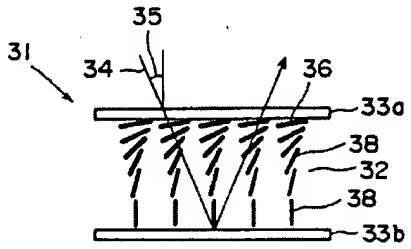
of film, organic material (polymer) is given as an embodiment, and has a thickness of 5 μm or less (column 4, lines 10-20) which is within the claimed range of not larger than 10 μm. When made of liquid crystal, organic cholesteric liquid crystal polymer is given as an embodiment, and has a thickness of 2 to 20 μm (column 6, lines 55-65) which overlaps the claimed range of not larger than 10 μm.

Kameyama et al. fails to teach that the oriented transparent layer has the refractive index relationship: $n_x <=> n_y > n_z$. which further defines the refractive anisotropy of the oriented layer.

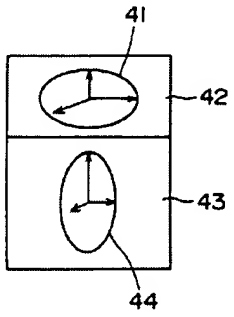
Kameyama et al. fails to teach that the two polarizers 71, 4 in the figure above are disposed in the form of a crossed-Nicol, that both of the polarizers have transparent layers which have a sum of thicknesswise retardation values in a range of from 0.5 times to 1.3 times as large as an absolute value of a thicknesswise retardation of the liquid crystal cell 7, or that the liquid crystal layer in the cell 7 is vertically aligned.

Mori et al. has a liquid crystal display device which has a polarizer (polarizing plate on each of the two optical retardation (compensatory) sheets in such a manner that the two polarizing axes are intersected at right angles (i.e. cross-nicole) (column 24, lines 35-45). The two transparent (compensatory) sheets have a sum of absolute values of thicknesswise retardations, Re_1(column 4, lines 15-20), and the liquid crystal cell has an absolute value of a retardation, Re_2 (column 4, lines 15-20), such that $0.2\ Re_2 \leq Re_1 \leq 2.0\ Re_2$ (column 4, lines 10-15) which encompasses the claimed range of $0.5\ Re_2 \leq Re_1 \leq 1.3\ Re_2$ wherein Re is defined by $\{(n_x + n_y)/2 - n_z\}d_2$ where d_2 is the layer thickness (column 3, lines 65-70).

Mori et al. shows an embodiment below of the orientation of the liquid crystals in the cell. This is a hybrid alignment which has vertical alignment on one substrate and horizontal alignment on the other substrate, which is a homolog of vertical alignment on both substrates.



Mori et al. teaches that if the liquid crystal layer 44 of the cell has positive monoaxial optical anisotropy, then the film 41 can have negative monoaxial optical anisotropy in order to compensate for the retardation caused by the positive monoaxial optical anisotropy of the liquid crystal layer (column 7, lines 35-45). See Fig. 4 below.



Mori gives an example of a transparent layer (film) which has the claimed refractive index relationship: $n_x <=> n_y > n_z$ which is a species of negative monoaxial optical anisotropy. The organic material (polycarbonate) coating film (column 23, lines 10-15) has n_x =1.540, n_y =1.540 and n_z =1.536 (column 23, lines 25-35).

Kameyama et al. teaches that the optical provides improved brightness and color display balance (evenness) (column 15, lines 10-20). Therefore it would have been obvious to one of

ordinary skill in the art to have used the optical sheet of Kameyama et al. as part of the pair of polarizers in the liquid display of Mori et al. in order to obtain a liquid crystal display device with the desired color display balance.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (703)308-3265, **(571)272-1492 after December 29, 2003**. The examiner can normally be reached Monday to Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (703)308-4251. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

SH
Sow-Fun Hon
12/22/03

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772
12/23/03